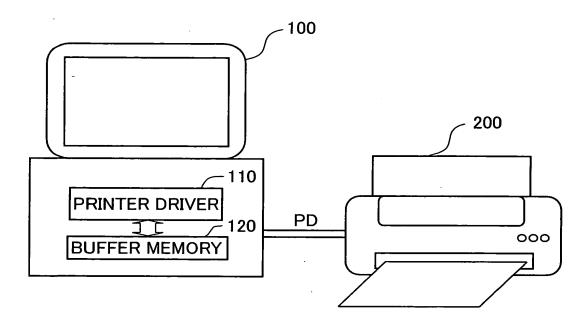
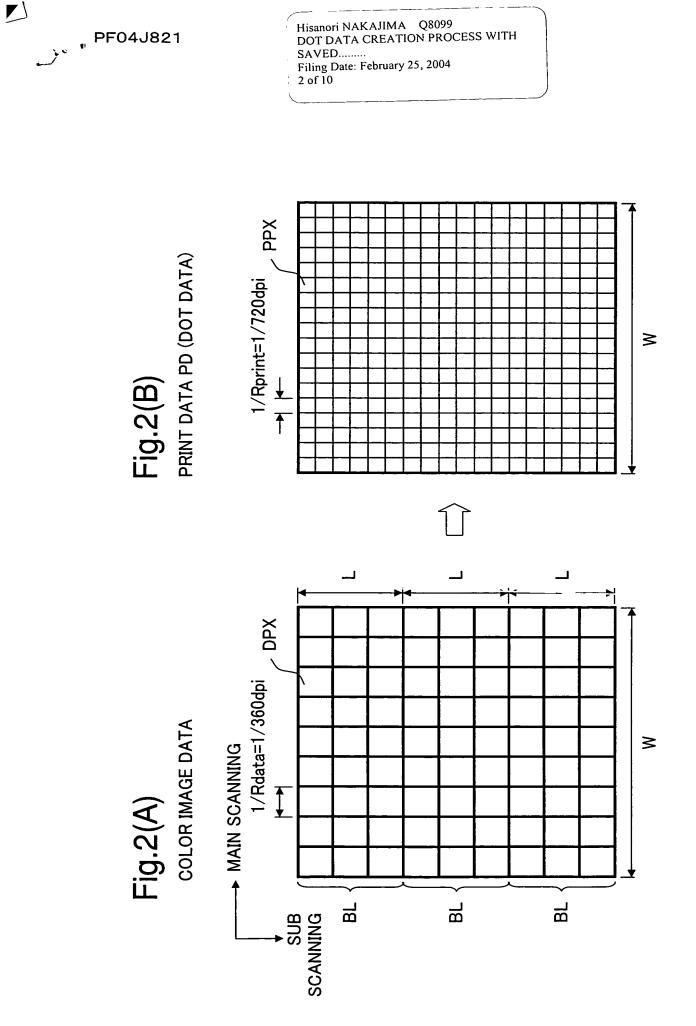
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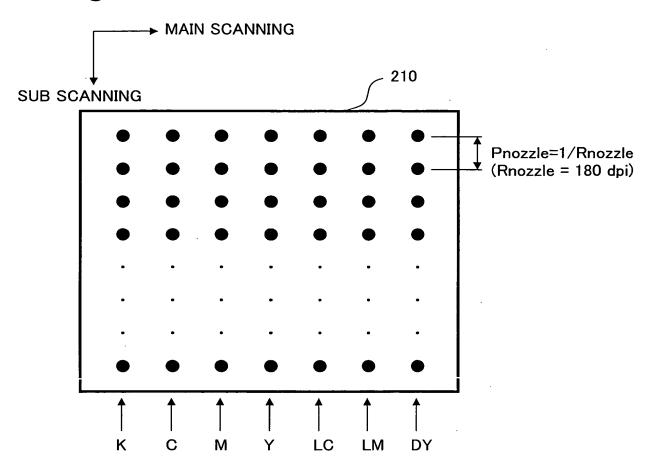
Fig.1





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Fig.3



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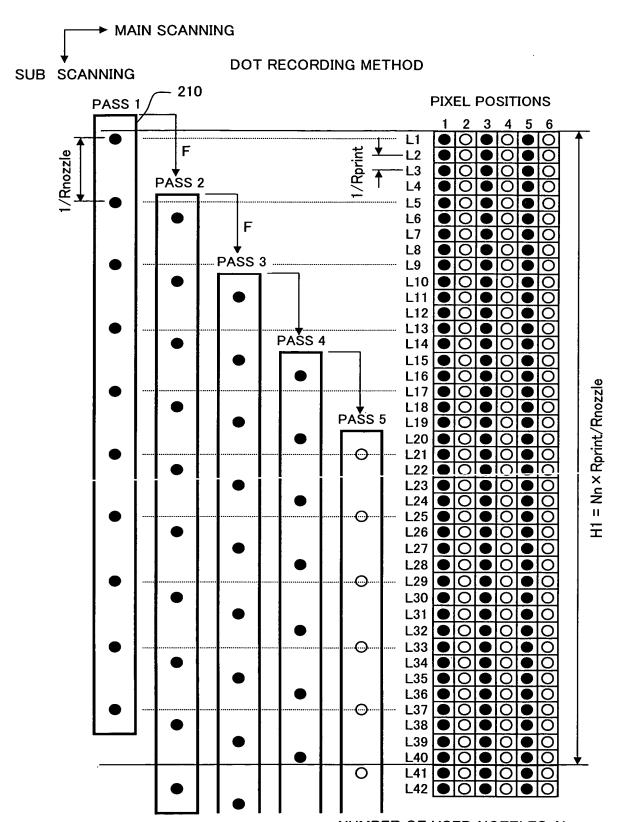
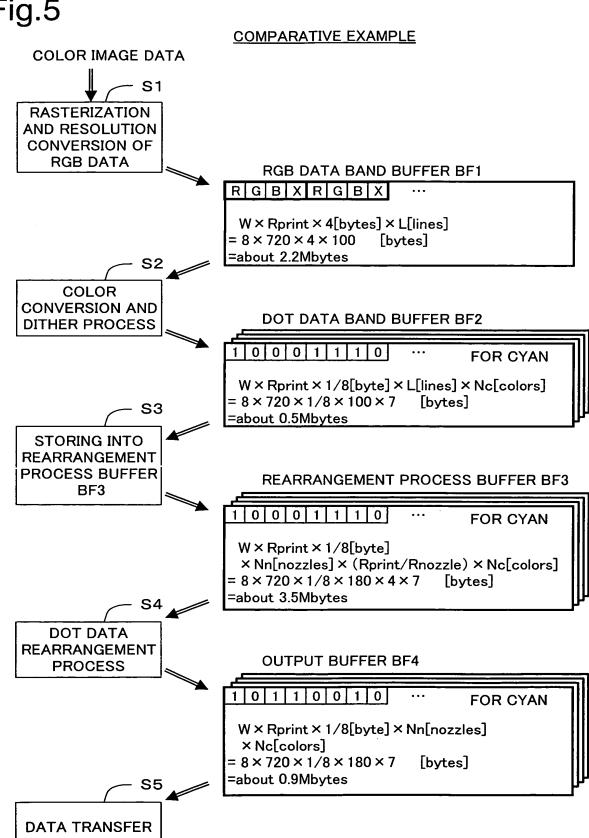


Fig.4

NUMBER OF USED NOZZLES: Nn NOZZLE RESOLUTION: Rnozzle = 180dpi PRINTING RESOLUTION: Rprint = 720 dpi Hisanori NAKAJIMA Q8099 DOT DATA CREATION PROCESS WITH SAVED..... Filing Date: February 25, 2004 5 of 10

#### Fig.5



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#### **COMPARATIVE EXAMPLE**

Fig.6(A)

REARRANGEMENT PROCESS BUFFER BF3

2 3 4 5 6 7 8 L1 0000000 L2 0 0 0 0 0 0 L2 0000000 L7 000000 L9 0 0 0 0 = Nn × Rorint/Rnozzle L23 • O • O • O L27 0 0 0 0 0 L35 0 0 0 L37 • O • O • O • L38 L39 • O • O • O • L40 • O • O •

Fig.6(B)

**OUTPUT BUFFER BF4** 

|     | <u>1</u> | 2 | 3 | 4 | _5 | 6 | 7 | 8        |
|-----|----------|---|---|---|----|---|---|----------|
| L1  |          | 1 |   | - | •  | 1 |   | -        |
| L5  |          | 1 | • | 1 |    | - | • | -        |
| L9  |          | ı |   | 1 | •  | 1 | • | $\equiv$ |
| L13 |          | 1 |   | 1 | •  | 1 |   |          |
| L17 |          | 1 |   | 1 |    | - |   | -        |
| L21 |          | ł |   | 1 |    | - |   | -        |
| L25 |          |   |   | ١ |    | 1 | • |          |
| L29 |          | 1 |   | - | •  | - | • | -        |
| L33 |          | 1 |   | 1 | •  | - |   | _        |
| L37 |          | 1 |   | - |    | - |   | -        |

D:DOTS SUBJECT TO **RECORDING ON PASS 1** -: DUMMY DATA

Fig.6(C)

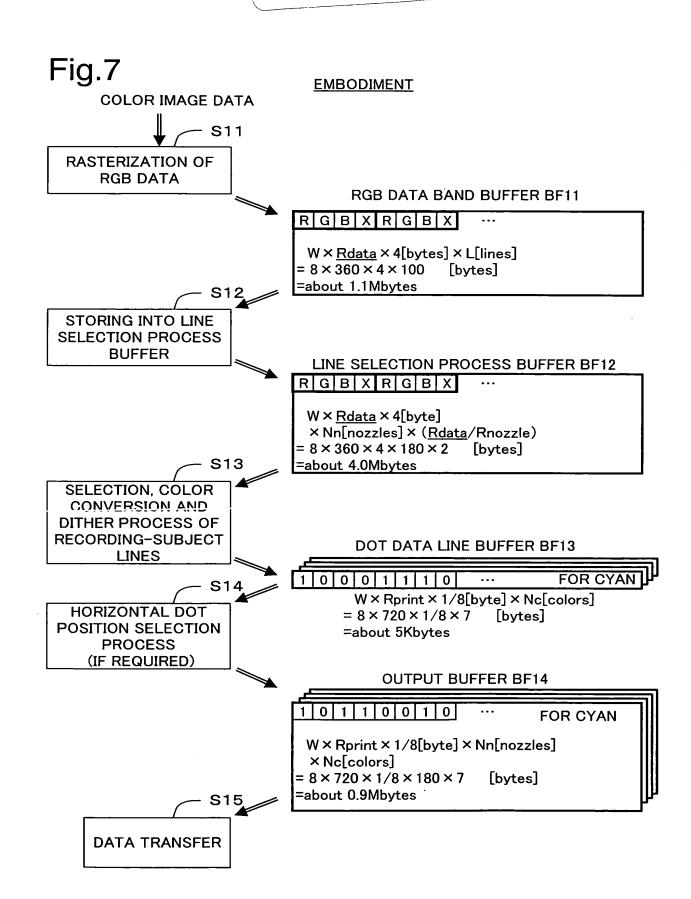
**OUTPUT BUFFER BF4'** 

|            | _1_ | 3 | 5 | 7 |
|------------|-----|---|---|---|
| L1         | •   | • |   |   |
| L5         | •   |   | • |   |
| L9         |     | • | • | • |
| L13        |     |   | • | • |
| L17        | •   |   |   | • |
| L21        | •   |   |   | • |
| ∟25        |     |   |   | • |
| <b>_29</b> | •   |   |   | • |
| ∟33        | •   |   |   |   |
| L37        |     |   |   |   |
|            |     |   |   |   |

●:DOTS SUBJECT TO **RECORDING ON PASS 1** 

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SAVED.....

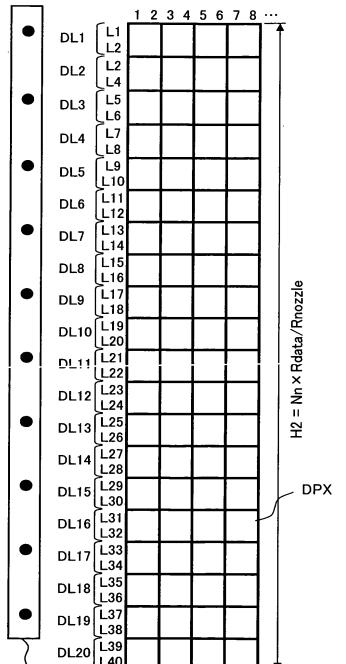
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#### **EMBODIMENT**

Fig.8(A)

LINE SELECTION PROCESS BUFFER BF12



L40

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### Fig.8(B)

**DOT DATA LINE BUFFER BF13** 

1 2 3 4 5 6 7 8 L1 0000000

> ●:DOTS SUBJECT TO **RECORDING ON PASS 1** O:DOTS SUBJECT TO RECORDING ON OTHER **PASSES**

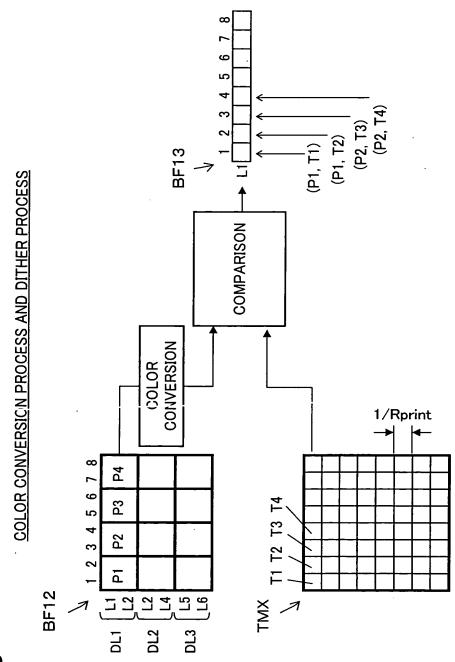
### Fig.8(C)

**OUTPUT BUFFER BF14** 

|     | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-----|---|---|---|---|---|---|---|---|
| L1  |   | 1 |   | ı | • | ı | • | _ |
| L5  |   | 1 | • | ı |   | - | • | _ |
| L9  | • | 1 |   | ı | • | - |   | - |
| L13 |   | - | • | - | • | - | • | - |
| L17 |   | - | • | - | • | - | • | _ |
| L21 |   | 1 | • | 1 |   | 1 |   | _ |
| L25 | • | 1 |   | 1 |   | - |   | - |
| L29 |   | - |   | - |   | - |   | - |
| L33 |   | - | ê | _ | • | _ |   | _ |
| L37 |   | - |   | - |   | _ | • | _ |

:DOTS SUBJECT TO **RECORDING ON PASS 1** -: DUMMY DATA

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# Fig.10(A)

#### BUFFER CAPACITY ACCORDING TO COMPARATIVE EXAMPLE

| TYPE OF                             | BUFFER CAPACITY  | PRINTING<br>RESOLUTION Rprint |      |      |  |
|-------------------------------------|--|-------------------------------|------|------|--|
| BUFFER MEMORY                       | [bytes]  | 720                           | 1440 | 2880 |  |
| RGB DATA BAND<br>BUFFER BF1         | W × Rprint × 4[bytes] × L[lines]   | 2.2                           | 4.4  | 8.8  |  |
| DOT DATA BAND<br>BUFFER BF2         | W × Rprint × 1/8[byte] × L[lines]<br>× Nc[colors]                          | 0.5                           | 1.0  | 1.9  |  |
| REARRANGEMENT<br>PROCESS BUFFER BF3 | W × Rprint × 1/8[byte]<br>× Nn[nozzles] × (Rprint/Rnozzle)<br>× Nc[colors] | 3.5                           | 13.8 | 55.4 |  |
| OUTPUT BUFFER<br>BF4                | W × Rprint × 1/8[byte]<br>× Nn[nozzles] × Nc[colors]                       | 0.9                           | 1.7  | 3.5  |  |
| TOTAL [Mbytes]                      | (Assuming that W = 8, L = 100,<br>Nc = 8, Nn = 180, and Rnozzle = 180)     | 7.1                           | 20.9 | 69.6 |  |

## Fig.10(B)

#### BUFFER CAPACITY ACCORDING TO EMBODIMENT

| TYPE OF                               | BUFFER CAPACITY  | PRINTING<br>RESOLUTION Rprint |      |      |  |
|---------------------------------------|--|-------------------------------|------|------|--|
| BUFFER MEMORY                         | [bytes]  | 720                           | 1440 | 2880 |  |
| RGB DATA BAND<br>BUFFER BF11          | W × Rdata × 4[bytes] × L[lines]  | 1.1                           | 2.2  | 4.4  |  |
| LINE SELECTION<br>PROCESS BUFFER BF12 | W × Rdata × 4[bytes] × Nc[nozzles]<br>× (Rdata/Rnozzle)                                | 4.0                           | 4.0  | 4.0  |  |
| DOT DATA LINE BUFFER<br>BF13          | W×Rprint×1/8[byte] ×Nc[colors]   | 0.005                         | 0.01 | 0.02 |  |
| OUTPUT BUFFER<br>BF14                 | W × Rprint × 1/8[byte]<br>× Nn[nozzles] × Nc[colors]                                   | 0.9                           | 1.7  | 3.5  |  |
| TOTAL [Mbytes]                        | (Assuming that W = 8, L = 100,<br>Nc = 8, Nn = 180, Rdata = 360,<br>and Rnozzle = 180) | 6.0                           | 7.9  | 11.9 |  |